[illegible]

[illegible] [illegible]

[illegible]

Causation[illegible]

Turing Test [illegible]

[illegible] causation[illegible]

[illegible]Universal Approximation Theorem [illegible] Nash Embedding Theorems [illegible]word-embedding vector space [illegible]

[illegible] Axiom of Choice [illegible]causation [illegible]

[illegible]

[illegible]

[illegible]

[illegible] Turing Test[illegible]AlphaGo [illegible] dataset[illegible]

[illegible] AlphaGo Zero [illegible] superhuman [illegible] AlphaGo [illegible]

[illegible] free will [illegible] causation [illegible]

[illegible] ready[illegible] SAE level 4 [illegible]

[illegible] Alphabet/Waymo [illegible] SAE level 4[illegible] Alphabet/Waymo [illegible]

[illegible]

Reward Is Enough [illegible]reward [illegible] reward [illegible] reward [illegible]Reward [illegible]

[illegible] causation[illegible]

[illegible]Universal Approximation Theorem [illegible] Nash Embedding Theorems [illegible] Word-embedding Vector Space [illegible] Word-embedding Vector Space [illegible] Word-embedding Vector Space [illegible]

[illegible]

[illegible]

[illegible]

[illegible]AlphaFold [illegible] AlphaGo Zero [illegible] without human knowledge [illegible] Deepmind [illegible] KL [illegible] AlphaFold [illegible]

[illegible]deep learning[illegible]reinforcement learning[illegible]

[illegible] reward[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

[illegible] Universal Approximation Theorem [illegible] selfish gene [illegible]

[illegible]

[illegible]

[illegible]

[illegible] logical positivism [illegible] logical empiricism [illegible] Positivism [illegible] empiricism [illegible]

[illegible] Category Theory [illegible] causation [illegible] law [illegible] critique [illegible]

[illegible] critique [illegible] Critique [illegible] Word-embedding Vector Space [illegible]

[illegible]

[illegible]

[illegible]

[illegible] Peano axioms [illegible]

[illegible]

[illegible]

[illegible] causation [illegible] Dirac Delta Function [illegible] Strange Attractor [illegible]

[illegible]

[illegible]

[illegible]

1[illegible] AlphaGo [illegible]

Deepmind [illegible] AlphaGo Zero [illegible] AlphaGo [illegible]

2[illegible]

3[illegible]

4[illegible] Axiom of Choice [illegible]

[illegible] 1) [illegible] 2) [illegible] 3) [illegible] 4) [illegible] 1) [illegible] 2) [illegible]

[illegible] Human Brain Project [illegible]“[illegible]”[illegible] Brain Initiative [illegible]

[illegible]

[illegible]

[illegible]

Leukotomy [illegible] selfish gene [illegible] Technological Singularity[illegible]AlphaGo Zero [illegible] superhuman performance[illegible]potentially a meta-solution to any problem[illegible]Reward Is Enough [illegible] superhuman[illegible]

[illegible]

[illegible]

Solyndra [illegible] arXiv [illegible] arXiv [illegible]

[illegible]

[illegible] A[illegible]B[illegible]C[illegible]D[illegible]E [illegible]

A. [illegible]

1. [illegible]

2. [illegible]

3. [illegible] Chaitin's constant [illegible]

4. [illegible]

5. [illegible] 1 - 4 [illegible]

B. [illegible]

6. [illegible]relevance theory [illegible]

7. [illegible]

8. Grigori Perelman [illegible] Poincaré conjecture [illegible]

9. Demis Hassabis [illegible] AlphaGo [illegible] intuition[illegible] intuition [illegible] Demis Hassabis [illegible] AlphaGo [illegible] intuition [illegible] AlphaGo [illegible] a meta-solution to any problem[illegible]

10. [illegible] AlphaGo [illegible] Nature [illegible] superhuman performance[illegible]

C. [illegible]

11. [illegible] form [illegible]

12. [illegible] motif [illegible]

13. [illegible]“truth”[illegible] truth[illegible]

14. [illegible] The Selfish Gene[illegible] The Immortal Gene[illegible]

15. [illegible]Freeman Dyson [illegible] Birds and Frogs [illegible] birds [illegible] frogs [illegible]

16. [illegible]Austrian School of Economics[illegible]

17. [illegible]selfish gene [illegible]

D. [illegible]**:**

18. [illegible]

19. [illegible]

20. [illegible]“[illegible]”[illegible]“[illegible]”[illegible]

21. [illegible] Turing Machine [illegible]deterministic, probabilistic, etc.[illegible]

22. [illegible] Turing Test [illegible] SAE level 4 [illegible] level 5 [illegible]

23. [illegible] word-embedding vector space [illegible] encoder-decoder, attention, transformer, BERT [illegible]

24. [illegible] deep-learning [illegible] deep residual networks [illegible]generative adversarial networks, etc.[illegible]

25. [illegible] Universal Approximation Theorem [illegible] overfitting[illegible]underfitting [illegible] chaos phenomena [illegible]

26. [illegible] reward [illegible] Reward Is Enough [illegible]

27. [illegible]selfish gene [illegible]

28. [illegible]

E. **[illegible]:**

29. [illegible] O.J.Simpson [illegible]

30. [illegible] reward [illegible]

[illegible]

[illegible] Freeman Dyson [illegible]

[illegible]

[illegible]

[illegible]

[illegible]“[illegible]”[illegible]

[illegible]

[illegible] AlphaGo [illegible] Nature [illegible]

[illegible] SAE level 5 [illegible]SAE level 4 [illegible]

[illegible]

[illegible]

[illegible]

[illegible]The Selfish Gene [illegible]

[illegible] Freeman Dyson [illegible] a great bird[illegible] frog[illegible] bird [illegible] frog [illegible] frog [illegible] frog [illegible] bird[illegible]

[illegible]

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[illegible]

[illegible]

[illegible]

[illegible]

[illegible]“[illegible]”[illegible]“[illegible]”[illegible] natural law [illegible]

[illegible]

[illegible]

[illegible]

Deepmind [illegible] Reward Is Enough[illegible] Reward Is Enough [illegible]

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

[illegible] causation[illegible]

[illegible] causation[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

Softbank [illegible] Aldebaran Robotics [illegible] Pepper [illegible]Google X[illegible]Softbank [illegible] Hyundai [illegible] Boston Dynamics[illegible]

Passion [illegible]Pepper [illegible] superhuman [illegible]Superhuman [illegible]

[illegible] context [illegible] game[illegible] regulated [illegible]

[illegible]

[illegible] passion [illegible]

[illegible]

[illegible]**Causation** [illegible] **metaphysics**

[illegible]Demis Hassabis [illegible] Deepmind [illegible] potentially a meta-solution to any problem[illegible]

A meta-solution to any problem[illegible] metaphysics [illegible]Stanford Encyclopedia of Philosophy [illegible] metaphysics [illegible]“The word ‘metaphysics’ is notoriously hard to define.”[illegible] Deepmind [illegible] metaphysics [illegible] a meta-solution to any problem [illegible]

[illegible] physics[illegible] metaphysics[illegible] metaphysics[illegible] Deepmind [illegible] a meta-solution [illegible]

[illegible]Deepmind [illegible]

[illegible]Deepmind [illegible] Deepmind [illegible]

Stanford Encyclopedia of Philosophy [illegible] Regularity and Inferential Theories of Causation [illegible] metaphysics[illegible] metaphysics[illegible] Standford University [illegible] The Metaphysics Research Lab[illegible]Stanford Encyclopedia of Philosophy [illegible] lab [illegible] lab [illegible] metaphysics [illegible]

[illegible] Stanford Encyclopedia of Philosophy [illegible] metaphysics [illegible] metaphysics [illegible] metaphysics [illegible] metaphysics [illegible] metaphysics[illegible]

[illegible] metaphysics [illegible]“[illegible]”[illegible]“[illegible]”[illegible]• [illegible] metaphysics [illegible]• [illegible]

Stanford Encyclopedia of Philosophy [illegible] Regularity and Inferential Theories of Causation [illegible] premise, context, set, maximize [illegible] causation [illegible]

[illegible] context [illegible] context [illegible]

[illegible] **Avi Loeb** [illegible]

[illegible]

[illegible]

Avi Loeb [illegible] Scientific American [illegible] A[illegible]B[illegible]C[illegible]D [illegible]civilization[illegible] A [illegible] civilization [illegible] civilization [illegible]Creator[illegible] civilization [illegible]Avi Loeb [illegible]

Avi Loeb [illegible] civilization [illegible] independent of its host star [illegible] B [illegible] independent of its host star [illegible] when the sun will die[illegible]

[illegible] B [illegible] civilization [illegible]

Avi Loeb [illegible] B [illegible] civilization [illegible] B [illegible] civilization [illegible] B [illegible] civilization [illegible]

[illegible] Independent of its host star [illegible] independent of its host star [illegible]

[illegible]

[illegible] independent of its host star [illegible] B [illegible] civilization [illegible]

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

[illegible]

[illegible] people[illegible]people [illegible]